by a vibrating tuning-fork was observed and described by Guyot in 1834. (15.) "On the maximum-density and freezing point of mixtures of alcohol and water," by F. Rossetti. This is a short extract from the author's researches on the expansion of water and certain solutions, published in greater detail in the *Annales de Chimie et de Physique* for 1867 and 1869 (vols. x. and xv.). (16.) "A Method of Examining the Structure of Flames," by L. Dufour. The flame is cut across horizontally by a flat lamellar jet of water or of air, and can then be examined at leisure by looking down into it from above. (17.) "Remarks on the colour of iodine," by Carl Schultz-Sellack. The author calls attention to the different colour of iodine in the solid state, or when dissolved in water, alcohol, &c., from that which it shows in the state of vapour, or when dissolved in sulphide of carbon, stannic chloride &c., iodine transmitting in the former case chiefly the extreme red rays of the visible spectrum, and, in the latter case, chiefly the blue and violet rays. He argues that this difference of absorptive character between solid or liquid and gaseous iodine is analogous to the difference which exists, according to Magnus, between the absorptive action of liquid and gaseous water on invisible heat-rays. (18.) Prof. Nordenskiöld announces the discovery of *platinum* as well as gold in the sand of the river Ivalo in North Lapland. (19.) The genuine character of the diamond lately found in Bohemia has been proved by Prof Schafarik by burning a portion of it in oxygen.

Journal of the Chemical Society, July and August, 1870.—The whole of the July number and 22 pages of the August number of this periodical are occupied by the continuation of the very elaborate and exhaustive paper by Dr. Divers on the combinations of carbonic anhydride with water and ammonia. The half acid ammonium carbonate which was previously considered to be represented by the formula $(CO_2)_3\ (OH_2)_5\ (NH_3)_4$ is found by Dr. Divers to contain $(CO_2)_3\ (OH_2)_4\ (NH_3)_4$; when exposed to the air it loses water and ammonia, being transformed into the acid carbonate $CO_2\ OH_2\ NH_3$, of which 8 modes of preparation are described. Another compound obtained in an impure condition by Rose, is considered by the author to have the composition $(CO_2)_5\ (OH_2)_4\ (NH_3)_4$. He also thinks it probable that the orthocarbonate $CO_2\ (OH_2)_2\ (NH_3)_4$ or $CO_4\ (NH_4)_4$ exists. The modes of preparation and properties of ammonium carbamate $CO_2\ (NH_3)_2$ are fully described. The formula attributed to the commercial carbonate of ammonia is $(CO_2)_2\ OH_2\ (NH_3)_3$. The whole of this memoir bears evidence of most careful research and perseverance; the history of the compounds mentioned is traced out; the modes of preparation and properties are carefully described, and very numerous analyses have been made in order to ascertain their composition. Mr. Charles Griffin describes a new gas furnace for chemical operations at a white heat, which does not require a blowing machine. The gas is supplied to this furnace through a bundle of 16 Bunsen's burners, the upper ends of which are surrounded by a metal jacket fitting into a perforated clay plate supported on a tripod. When large crucibles are to be employed, a plumbago cylinder open at both ends and pierced with holes is placed on the clay plate, the conical crucible being supported by the upper end of the cylinder. The crucible and plumbago cylinder are surrounded by a fireclay cylinder resting on three bronze pennies placed on the lower plate. The cylinder is closed at the top by a clay plate, through which a flue is so made that the current of spent gases is bent twice at right angles before escaping into the sheet-iron chimney; the object of this flue is to check the stream of gas which would otherwise be so great as to cool the furnace very considerably. When small crucibles have to be heated, they must be supported on a grate consisting of a clay plate with a cusped aperture. By means of this furnace, ingots of cast iron 4lbs. in weight have been fused in 2½ hours, starting with a cold furnace; when the furnace is hot, 5lbs. could be fused in the same time; the quantity of gas used is 33 cubic feet per hour. The cylindrical body of the furnace may be replaced by one of an oval shape, and containing a muffle in which many operations may be performed, the temperature inside the muffle being sufficiently elevated to fuse silver, gold, and copper. The remainder of the August number is devoted to the proceedings of the society during the session of 1869-70, and a report of the anniversary meeting held on March 30, the latter including the President's address and obituaries of Mr. Brayley, F.R.S., Dr. Graham, F.R.S., Mr. A. B. Northcote, M.A., Dr. Penny, F.R.S.E., and of the late foreign members, Drs. Erdmann and Redtenbacher. These are followed by the list of papers read during the year; the balance-sheet, which shows the society to be in a prosperous condition; and the donations to the library.

SOCIETIES AND ACADEMIES

NEW ZEALAND

Wellington Philosophical Society, June 25.—W. B. D. Mantell, F.G.S., president, in his address, directed attention to the large additions made during the past year to the collection of fossil Reptilian remains in the Museum by the officers of the Geological Survey. Several genera are represented, but owing to the nature of the matrix, which exceeds in hardness the most refractory of the "Tilgate" beds, their development will be a work of great difficulty.—Walter Buller, F.L.S., exhibited and described a specimen of the now almost extinct New Zealand Rat or Kiori—in former days a highly valued article of food among the natives, and pointed out its striking resemblance to the ancient black rat of Britain.—T. H. Potts exhibited chicks a few days old of *Anarhynchus frontalis*, showing the characteristic crooked bill, and also the eggs and manner of nidification, along with those of *Charadrius bicinctus*; completely establishing the marked difference between the two birds.—W. T. L. Travers, F.L.S., gave an account of the habits of the Crested Grebe in New Zealand. He has reason to think that they pair for life, and stated that they make additions to the height of their nests, as inundation takes place, but that the eggs will retain their vitality though immersed in water for a considerable time, and inferred that this might have some connection with the coloured mucous layer with which the shell becomes coated during incubation.—Dr. Hector said he had found the nest containing eggs in a tidal lagoon, where it must have risen and fallen with the tide. The eggs were not discoloured. He also exhibited a dusky variety of the bird along with its chick, which is only found on unfrequented inland lakes.—Dr. F. J. Knox exhibited sections of the teeth of a *two-toothed Berardius*, and showed that, from the high state of development, they are not rudimentary as has been surmised, and yet they never appear to protrude through the gum.—John Buchanan exhibited a hybrid between the Australian *Acæna ovina*, which has been lately introduced with imported cattle, and the New Zealand *Acæna sanguisorbæ*.—Dr. Hector, F.R.S., called attention to the practical importance of knowing what fish belonging to the Salmonidæ are found in the New Zealand streams, as the English trout is being rapidly introduced throughout the country. Only one species, *Retropinna richardsonii* (the New Zealand smelt), is mentioned in the latest works as being found in New Zealand; but he exhibited in addition two very distinct forms, one having the same general character as that fish, but with dentition and form of head of an *Osmerus*. The third form is easily distinguished by its small head, forward position of the dorsal fin, small soft mouth devoid of teeth except a feeble row along the upper jaw. It is the common Opokororo of the natives, and grows to a very considerable size in some of the rivers and lakes. He also exhibited drawings of a specimen of *Scopelus* which he had obtained in Milford Sound, as a fourth fish related to the Salmonidæ.

PARIS

Academy of Sciences, Aug. 22.—A note was read by General Morin on the first session of the international metric commission, held from the 8th to the 13th of August.—A letter was presented by Professor Newcomb of Washington to M. Delaunay on irregularities in the moon's motion due to the influence of the planets.—A note was read from M. Laranja e Oliveira on a remarkable atmospheric electric shock experienced at Porto-Alegre, Brazil, on June 9th.—M. Chapelas reported his observations on the August shooting-stars. He remarked that the year has been distinguished by a smaller number of shooting-stars than has been known for a long period. The periodic display commenced in the last days of July, but the determination of its maximum presented great difficulty, both from the almost constantly clouded condition of the sky, and from the moon being at her full. During the night of the 10th, in which there was an hour and a half favourable for observation, with an average clear sky amounting to 0·6, forty-six shooting stars were observed, among which were two meteors of the third magnitude. Their mean direction was (as is generally the case, and especially at that hour, $10^h\ 15^m$ to $11^h\ 45^m$) from

N.E. to N.N.E. The point of radiation was very difficult to determine owing to the small number of meteors. The constellations in which most appeared were Perseus, Cassiopeia, Camelopardus, and Aquila. Correcting the number observed for the influence of the moon, we get a mean at midnight of fifty-six shooting-stars per hour in a clear sky, or three more than last year; so that the phenomenon may be considered stationary. At 1 A.M. the sky was completely obscured, and the exact hour of maximum cannot be indicated; but during the time observed the phenomenon proceeded at the rate of ·6 stars per minute.—M. d'Avezac presented, in the name of the author, Don Salvador Clavijo, a general in the Spanish army, resident at the Canaries, a work entitled *Reflexiones sobre el sistema planetario*, on the rotation on their axis of the bodies comprising the solar system, planets and comets.

BERLIN

German Chemical Society, July 25.—M. Küchenmeister has obtained two different naphthoic acids corresponding to the two naphthols, by treating the two naphthylsulphates with cyanide of potassium and the cyanides with potash. One of the acids melts at 217°, the other at 230°.—C. Gräbe has continued his researches on the higher hydrocarbons of coal tar. After treating them with sulphide of carbon, which dissolves chrysen, there remains an impure substance which, when acted on by picric acid, forms a combination crystallising from alcohol in red needles. Decomposed with ammonia, they leave white scales of *pyrrhen*. To this hydrocarbon Laurent allotted the formula $C_{15} H_{12}$. Gräbe's determinations lead to the formula $C_{16} H_{10}$, borne out by the picrate $C_{16} H_{10}. C_6 H_2 (NO_2)_3 OH$. Oxidation with bichromate of potassium and acetic acid yields the chinone $C_{16} H_8 O_2$, from which zinc separates the hydrocarbon $C_{16} H_8$. The nitro-compound $C_{16} H_9 (NO_2)$, and the two bromides in which two and three atoms of bromine take the place of hydrogen, have also been investigated. The author considers his hydrocarbon as phenylen naphthalin, $C_{16} H_{10} = C_{10} H_8 + C_6 H_6 - H_4$.——Messrs. Gräbe and Caro have investigated the base contained in impure anthracene, to which, on account of its action on the mucous membrane, they have given the name of acridine. To obtain its sulphate, the impure hydrocarbon is treated with sulphuric acid, and some bichromate of potassium added to the filtrate. It shows a blue fluorescence, and its composition corresponds to the formula $C_{12} H_9 N$, or a multiple of it.—M. Hofmeister publishes researches on phenylic ether and diphenylenic oxide. The former body is obtained by treating sulphate of diazobenzol with phenol, adding potash and distilling the insoluble residue, or by heating together sulphate of aniline, phenol, and nitric acid. It melts at 28°, distils at 240°, is not attacked by zinc, yields with PCl_5 a chloride (not yet analysed), and with sulphuric acid a conjugated acid $(C_6 H S_4O_4 H)_2 O$.—Lesimple has described a body obtained by distilling phosphate of phenyl, under the name of phenylic ether, ascribing to it the melting point 80° and the boiling point 273°. Hofmeister proves the real formula of this body to be not $(C_6 H_5)_2 O$ but $(C_6 H_4)_2 O$.—M. Beer has transformed benzophenon $(C_6 H_5)_2 CO$ into the chloride $(C_6 H_5)_2 C Cl_2$, and this by finely divided silver into the hydrocarbon $(C_6 H_5)_2 C = C (C_6 H_5)_2$ tetra-phenylated ethylene. Products of substitution have been formed with NO_4, HSO_3 and Br. The bromide has the composition $C_{26} H_{17} Br_5$.—M. Schöne has obtained a combination of peroxide of barium and peroxide of hydrogen. This compound $Ba \left\{ \begin{array}{l} - O - OH \\ - O - OH \end{array} \right.$ is formed by mixing peroxide of barium with a solution of ½ per cent. of peroxide of hydrogen in water. At 10° it forms colourless monoclinohedric crystals resembling heavy-spar. At ordinary temperatures it becomes yellow, and yields water, oxygen, and peroxide of barium. This explains why alkaline solutions of peroxide of hydrogen are unstable.—V. Meyer communicated his views on the constitution of gallic acid.—Professor Hofmann then rose to report in his name and that of several of his pupils on the following researches partly unfinished, the war having called assistants and pupils from the laboratory into the field.—M. Bischoff, passing chlorine through an alcoholic solution of prussic acid, has obtained two crystalline substances $C_8 H_{14} Cl_2 N_2 O_4$, already obtained by Stenhouse, and a new body $C_8 H_{15} Cl N_2 O_4$. Treated with acids or alkalis, they yield carbonic acid, ammonia, hydrochloric acid, and also ethylenic ammonia and a brown substance probably containing very complicated bases.—M. Melens, by treating acrolein with cyanic acid, has transformed it into a kind of trigenic acid.—M. Judson has transformed crotonchloral by oxidation into trichlorocrotonic acid and the salts and ethers of the same. The silver-salt boiled with water yields carbonic and hydrochloric acids, and the chloride $C_3H_2Cl_2$, identical or isomeric with chlorinated allylene. This body can also be obtained by treating crotonic chloral with alkalis. By treating the chloral with perchloride of phosphorus, O is replaced by Cl_2, hydrochloric acid being eliminated at the same time: $C_4 H_3 Cl_3 Cl_2 - H Cl = C_4 H_2 Cl_4$.—M. Reimer has studied the butylamines. The bromide of tetrabutylamine can not be obtained. It yields at once butylene and hydrobromide of tributylamine.—M. Reiss has prepared butyl-benzol and butyl-anisol.—Professor A. W. Hofmann reported on his protracted researches on the green colouring substance obtained from rosaniline by the action of aldehyde and hyposulphite of sodium. Not forming any combinations and not crystallising, this substance could only be purified by frequent solution and reprecipitation. Numerous analyses lead to the formula $C_{22} H_{27} N_3 S_2 O$ corresponding to one molecule of rosaniline, one of aldehyde, and two of hydrosulphuric acid combined. Rosaniline treated with hyposulphite without the intervention of aldehyde yields a similar product from which acids reproduce rosaniline.—The same chemist, in treating bromide of ethylene with ammonia, has observed the formation of an insoluble white amorphous powder, exhibiting the strange property of absorbing large masses of water and swelling up to a voluminous gelatine. The substance (probably a mixture) corresponds to the formula $\left. \begin{array}{c} (C_2 H_4)_4 \\ H \end{array} \right\} N_3$ combined with $H Br$, $H_2 Br_2$ or $H_3 Br_3$. But triamines being soluble, it is very likely that the formula should be multiplied.—The same chemist, when preparing cyaniline 25 years ago, observed that the mother-liquor treated with hydrochloric acid, yields dark red crystals. He has at last succeeded in purifying them, and establishing their formula $= C_{21} H_{17} N_5. HCl$—a triphenylated guanidine $N_3. C^{iv}. (C_6 H_5)_3 H_2$, in which two molecules of cyanogen have combined with two molecules of phenyl. If, however, triphenylated guanidine is treated with cyanogen, a body is formed of exactly the same composition, but of very different properties. The latter is colourless, and is transformed by acids into aniline, carbonic oxide, hydrogen, diphenyl oxamide, and diphenylated parabanic acid; whereas the former, when treated with acids, yields aniline, oxalic acid, and ammonia.—The same chemist has studied the action of triethyl phosphine on cyanate of phenyl, and found the resulting body to be not a cyanurate, but a new substance combining with alcohols, ammonia, &c.—A. Baeyer reported on some further derivatives of mellitic acid.—Mesohydro mellitic acid appears to be the first aldehyde of hydromellitic acid, and derives from it by the action of sulphuric acid and bromine. It is tetrabasic and beautifully crystallised. Only one acid is now wanting to complete the series, beginning with benzoic and ending with mellitic acid. The clue to obtain this acid appears to have been found. The same chemist has obtained a derivative from tetrahydrophthalic acid, which appears to be quinic acid.—Professor Rammelsberg then concluded the meeting by expressing his fervent hopes that a speedy victory of the German arms would allow all members of the society to resume their peaceful pursuits before the reassembling of the society in October.

NEW YORK

Lyceum of Natural History, April 4.—The President in the chair.—Dr. J. S. Newberry "On the Earliest Traces of Man found in North America." Dr. Newberry stated that the human relics for which the highest antiquity had been claimed were the Natchez bone and Table Mountain (California) skull. If it could be shown beyond question, that these bones really occurred in the positions to which they have been referred, we should have evidence that man existed on this continent as a contemporary with the mammoth, mastodon, and other extinct mammals, and at a period so remote that all the topographical features of the surface have since changed—in the case of Table Mountain the bottom of a valley having become a mountain summit. As regards the Natchez bone, geological changes have been effected since the date assigned it, which, in Sir Charles Lyell's judgment, must have required a hundred thousand years. In neither of these instances were the human remains actually found by credible persons in strata of high antiquity, and no dependence whatever can be placed upon inferences made from this material in the solution of the question of the antiquity of man. We may to-morrow obtain indubitable evidence of the occurrence of the remains of man in the Table Mountain tertiaries and the Vicksburg bluff; but until such evidence be discovered we must discuss the question leaving these hypothetical cases entirely out of view. No solid and enduring scientific fabric can be reared on doubtful premises. The caves of our country have as yet scarcely been entered upon as ground for archæological research. But one cavern has been examined with any care, that of Carlisle, Pa., by Professor Baird—and this may be said to have been but partially explored. Human remains were found in it, but not of special interest. The fauna represented by the great number of bones collected there, is essentially the same with that which occupied the country on the advent of the whites. This remarkable fact, however, is reported by Professor Baird, that all the species represented in the collections made in the Carlisle cave, have degenerated in size, and this modern degeneracy ranges from ten to twenty-five per cent. The shell mounds on the Atlantic coast, north and south, have been partially investigated by Prof. Wyman, Prof. Baird, and others. In these mounds human remains are constantly met with, but none which can serve as proof of great antiquity. Perhaps the best evidence that these shell mounds are of ancient date, is furnished by the facts reported by Prof. Baird, that those of Maine contain the bones of the great Auk (*Alca impennis*) and those of the walrus. Of these the first is supposed to be entirely extinct, and both in modern times have been confined to higher latitudes. The mounds of the western states, the copper mines of Lake Superior, the old oil wells of Pennsylvania, and the lead mines of Kentucky, really afford us the only traces of human occupation yet found within our territory which have a respectable antiquity, and one which can be measured even negatively in years. All these traces of the ancient semi-civilised people that once inhabited the Mississippi valley, are found overgrown by what we term the "primeval forest," in which are trees five hundred years old; and these trees, in some instances, are growing on the prostrate trunks of individuals of equal size, belonging to a preceding generation. This, then, is the record. We can positively assert that the works of the mound builders were abandoned and overgrown by forests a thousand years ago; how much before that time we have no means of knowing. We may fairly infer that some hundreds of years were consumed in the multiplication of this ancient people, in their spread over and subjugation of the country they occupied, in the substitution of cultivated farms for the pre-existent forest, in the construction of towns so numerous as to thickly dot all the surface, in the thorough exploration and extensive working of the mineral districts and oil fields, in the acquisition of the degree of civilisation they attained, in their gradual reduction in numbers to their total extinction. In New Mexico, Mexico, Central America, and Peru, we have countless monuments of a civilisation generically the same throughout this great area, and a civilisation which was indigenous to America. For the rise, culmination and decline of this civilisation—for it was in its decadence when Columbus first discovered America—we must allow two thousand or three thousand years. Perhaps they occupied much more time than this; but all these changes could hardly have been effected in less than two thousand years. Whether there was any relationship between the ancient Mexicans and the mound-builders is a question yet to be decided. They had this in common, that both were sedentary and agricultural; were miners and builders. But the Mexicans and the Incarial race were famous masons, and built huge structures of dressed stone which scarcely suffer in comparison with our finest architectural monuments. The mound-builders, on the contrary, build in earth and wood, and the structures they raised have little in common, so far as plan is concerned, with those of the southern nations. No geographical connection has been traced between these ancient civilisations. The one seems to have been strictly confined to the Valley of the Mississippi, the other to the high table lands lying between the Rocky Mountains and the Sierra Nevada. In answer to inquiries, Prof. Newberry stated that the inscriptions which covered the monuments of Central America and Peru, like the arrowhead characters of Assyria, and the hieroglyphics of Egypt, were destined to be read. Indeed, it might be said that many of these inscriptions could now be read. But little was to be expected, however, in the way of historical facts, from a perfect translation of all these records. They were apparently, for the most part, local and personal in character, and like the Egyptian and Assyrian records, consisted mostly of religious invocations, laudation of persons, or celebrations of local and temporary political triumphs, which to us have no special significance or value. The mining operations of our ancient Americans were so extensive, that most of the important deposits of copper on Lake Superior had been not only discovered, but worked by them. The working of the oil wells by the mound-builders had not perhaps been noticed by others, but Prof. Newberry asserted it from observations he had himself made. On the bottom lands of Oil Creek, below Titusville, he had, in 1860, noticed that the ground in the primeval forest was pitted in a peculiar way, the pits two or three feet deep, eight or ten feet in diameter, and almost contiguous. These were proved (by excavations made preparatory to boring oil wells) to be the remains of ancient wells or pits sunk in the alluvial clay. One of these, opened to the depth of twenty-seven feet, was cribbed up with timber, and contained a ladder like those found in the ancient mines of Lake Superior, formed from the trunk of a tree on which branches were left projecting six or eight inches. Prof. Newberry had subsequently seen similar pits to these, around the oil springs of Mecca and Grafton, Ohio, and at Enniskillen, Canada West. In the latter locality, a modern oil well cut into the circumference of an ancient one, and this was found to be filled with sticks and rubbish. A pair of deer's horns were taken out thirty-six feet below the surface. The lead vein in Kentucky, to which reference had been made, had been worked by an open cut several hundred yards in length. This was now a ditch some feet in depth, with a ridge of material thrown out on either side, the whole was covered by forest, and trees three feet in diameter were growing upon the ridges of rejected rubbish.

April 11.—The president in the chair. Mr. O. Loew "On Hydrogenium-Amalgam." He showed that when zinc-amalgam is agitated with a weak solution of bi-chloride of platinum, a spongy mass forms upon the surface of the zinc-amalgam, having buttery consistence, and strongly resembling in physical characters, the well-known ammonium-amalgam. This body he considers to be an amalgam of hydrogenium and mercury. To prepare it on a large scale, he shakes thoroughly zinc amalgam, containing three per cent. of zinc, with an equal volume of a solution of bi-chloride of platinum, containing ten per cent. of the salt. The mass becomes warm, and must be cooled from time to time, by plunging the flask, in which the reaction is carried on, into cold water, and also takes on a black colour from the finely divided platinum which is reduced. The mixture is then thrown into moderately dilute hydrochloric acid, by which the excess of zinc and oxychloride formed is dissolved. Unless thus treated, the amalgam is rapidly decomposed with evolution of hydrogen. The platinum is, for the most part, removed with the excess of mercury. The body thus prepared, has the consistency and appearance of ammonium-amalgam as obtained by acting upon an ammonium salt with sodium amalgam. At ordinary temperatures, several days are required for its complete decomposition. It possesses the marked reducing power peculiar to hydrogenium, reducing ferricyanides to ferrocyanides, per salts of iron to proto salts, decolourising permanganate of potassium, &c. This hydrogenium-amalgam also absorbs ammonia, and the resulting body resembles ammonium-amalgam as otherwise obtained. Since Graham compared hydrogenium with the active modification of oxygen, Mr. Loew proposed to consider the following series as parallel:—

Antozone.	Common Oxygen.	Ozone.
Nascent Hydrogen.	Common Hydrogen.	Hydrogenium.

And he further suggests the representing of these three states of hydrogen, by formulæ in the following manner.

[H]	[H H]	[H H] H
Nascent Hydrogen.	Common Hydrogen.	Hydrogenium.

He performed the experiment as described, in a most satisfactory manner, producing a large mass of the supposed hydrogenium-amalgam. The reading of this paper elicited considerable discussion. Dr. I. Walz, spoke in high terms of Mr. Loew's ingenious experiment, but opposed his theoretical views; especially the comparison of nascent hydrogen and antozone, the existence of which he denied. He exhibited the action of bi-chromate of potassium and zinc-amalgam when shaken together, whereby the former is reduced, and apparently a compound of hydrogenium and mercury obtained, which differed in characters somewhat from that exhibited by Mr. Loew. Prof. C. A. Joy referred to the experiments of Schönbein, which conclusively prove, he considered, the existence of Antozone. Schönbein agitated zinc-amalgam with water, and examined the solution obtained. This did not act upon iodide of potassium and starch, until a trace of a proto-salt of iron was added, when immediately the blue colour of iodide of starch appeared. The use of bi-chloride of platinum for assisting the evolution of hydrogen, originated with De la Rive. He thought that Mr. Loew had gone a step farther than either Schönbein or Graham in this most important discovery.

April 18.—The president in the chair. The president made some remarks on the metalliferous deposits of the West, stating it as his opinion, that the production of gold had passed its climax; giving his reasons for so believing. Gold is found disseminated over vast regions in the West; the accumulations in the placers having been worked for ages. He then entered into a description of the manner in which the accumulation of metal had taken place. There is still plenty of gold everywhere, but it is very difficult to separate it from the associated rock in which it is embedded. Those deposits where it could be readily procured, are beginning to be exhausted. The mountain system of the West, considered with respect to the mineral wealth of that portion of the country, he considered divisible into belts, the westernmost or coast range producing mercury, the next eastward or Sierra Nevada Range, is very rich in gold. In the Rocky Mountains, the gold is associated with copper and iron pyrites. In Montana, the gold-bearing veins are extremely rich in that metal, but very difficult to work. Between the Rocky Mountains and the Sierra Nevada, there occurs an argentiferous belt stretching through Idaho, Nevada and Montana; it is in this region that the celebrated Comstock Lode is situated, which, up to the present time, has yielded 75,000,000 dollars. The agricultural portions of California, and the region eastward of the mountains, is of little value except for its mineral wealth, and, if it ever becomes important, it will be by the development of these deposits.

April 25.—The president in the chair. Prof. A. M. Edwards read a paper "On the presence of living insects in the human body," showing that several such cases were on record. In one case a fly had been reared from a larva ejected from the human intestines. As such larva are found mostly in decayed fruit, the plan to be followed for preventing the unpleasant results sometimes, although not always, arising from the introduction of such insects by the mouth, is to avoid eating such fruit or vegetables in a raw condition as are at all decayed.

May 2.—The president in the chair. Prof. A. M. Edwards read a "Report upon a specimen of *Anemone nemorosa* infested by a fungus." This fungus is a species quite common both in this country and Europe, upon the true leaves of the Anemone in early spring, and has been named *Puccinia anemones.* In Ray's "Synopsis" (Third Edition, 1724) it is described in company with true ferns, and it was for a long time supposed that the deeply cleft leaf of the Anemone, with the brown spots upon its under side, was a fern with sori. As Ray says, "this capillary was gathered by the Conjurer of Chalgrave," hence it has come to be known as the Conjurer of Chalgrave's fern. This fungus, like the other microscopic parasitic ones, grows beneath the surface of the plant, throwing out its threads of mycelium among the cells, until it develops the brownish coloured bodies, known as spores (perhaps incorrectly), and it is by the peculiar characters of these that species have been distinguished, although there seem two good reasons for supposing that these plants are not only dimorphous, as has been stated, but polymorphous, assuming different forms according to the habitat in which they are found. In reply to the question as to whether it was true, as was stated by farmers, that barberry bushes infested with fungus or mildew, conveyed that mildew to fields of wheat adjoining, which then showed the presence of "brand," Prof. Edwards remarked that such might very likely be the case, as very little certain is known respecting the life history of these minute plants, and he was now carrying on some experiments, by infesting different plants with fungi taken from others, so as to see if the host which they inhabited modified their characters materially. He described and illustrated, by means of diagrams, the characteristics of the wheat brand. *Puccinia graminis*, and other fungi, and expressed a hope that the botanical members would contribute specimens of such plants as they found to be infested by mildews, brands, and smuts, for the Society's collection.—The President made some remarks on the existence of human remains in caves in this country, in continuation of his communication at a recent meeting. He alluded to the well-known cave at Carlisle, Penn., which has been very carefully searched by Prof. Baird, of the Smithsonian Institution, whose investigations would be, it was hoped, shortly published. Besides the human remains there were found many of various mammals identical specifically with those now or lately living in the vicinity. But one remarkable fact had been developed—viz., that in every case they were at least one quarter larger in dimensions, so that these particular animals at least would seem to have degenerated in size during the lapse of time. Thus, for instance, numerous remains of foxes were found, having characters identical with those now living with the exception of the size. Prof. Shaler's explorations at Big Bone Lick recently, had also brought to light facts of great interest, which showed that the deer and buffalo were comparatively new comers upon this portion of the continent. He (Dr. Newberry) had found the bones of a buffalo on the west side of the Rocky Mountains, although they were not to be seen living there at the present time. The Indians of that district had traditions of the buffalo existing there at a recent period, all of which illustrated the change of fauna which had been for a long time and still was taking place upon this continent.—Prof. O. W. Morris read an "Abstract of the comparative meteorology of the month of March, for the years 1869 and 1870, and of the month of April, 1870," showing that in 1869 the lowest daily mean for March was 13·76°, and for 1870 it was 24·80°, or 11·04° higher. The mean temperature for March 1869 was 34·10°, and for 1870 it was 35·55°, or 1·45° warmer. The mean of the barometer for March 1869 was 29·834 in., and for 1870 it was 29·772 in. The mean humidity for March 1869 was 49·50°, and for 1870 it was 54·85°. The month of March 1870 was thus shown to be warmer than in 1869, the barometric pressure was a little less, and the humidity greater, although there was not so much rain. March 1870 kept up its old reputation as the "windy month." He also quoted from tables, prepared to show some other important facts in meteorology. Thus, examination of the records kept for the last sixteen years (1854-69, both inclusive), shows that the temperature during that time did not vary much, as the mean for the sixteen years is 52·60°, giving eight above and eight below the mean, and a range of 7° only, 1859 having the highest mean (55·66°) and 1868 the lowest (48·67°). The year 1869 was 1·1° below the average; the maximum of 1869 was nearly that of 1855; the minimum was greater than that of any in the series, being 85° above zero, while nine of the years it was below, and in 1866 it was 13° below, and in that year also the thermometer rose to 98·8°, the highest in the series. He also read from abstracts of the temperature, &c., kept by C. Bogert, in New York City, from 1816 to 1853.

BOOKS RECEIVED

ENGLISH.—A Class book of Inorganic Chemistry: D. Morris (Philip, and Son).—Clavis Agaricinorum: W. G. Smith (L. Reeve and Co.).—The Great Sewage Question: W. Justine (J. R. Day and Co.).

FOREIGN.—(Through Williams and Norgate)—Berichte über die Fortschritte der Anatomie u. Physiologie im Jahre, 1869; 2tes Heft (Henle Meissner, and Grenacher.)—Die Lehre von den Tonempfindungen: H. Helmholtz; 3te umgearbeitete Ausgabe.—Schmetterlinge Deutschland's und der Schweize: H. v. Heinemann.—Etude sur le Calendrier Copte et ses éphémérides: E. Tissot.—Traité d'histologie et d'histochimie: Frey, Spillmann, et Ranvier.

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